

What is claimed is:

1. A compound represented by the general formula:



5 wherein:

O is oxygen;

R_f and R_{f'} are, independently, a perfluoroaliphatic group, and if R_f and R_{f'} contain branched alkylene groups, then R_f and R_{f'} contain at least 4 carbons;

R_h is independently a linear, branched or cyclic alkylene group having from 2 to about 10 8 carbon atoms and at least 4 hydrogen atoms, and

wherein the hydrofluoroether compound is free of -O-CH₂-O-.

2. The compound of claim 1 wherein R_f and R_{f'} contain, independently, at least about 2 carbon atoms.

15 3. The compound of claim 2 wherein R_f and R_{f'} contain, independently, about 3 to about 20 carbon atoms.

4. The compound of claim 2 wherein R_f and R_{f'} contain, independently, 3 to about 7 carbon atoms.

20 5. The compound of claim 1 wherein R_f and R_{f'} contain at least 5 fluorine atoms.

6. The compound of claim 5 wherein R_f and R_{f'} contain, independently, at least 7 fluorine atoms.

25 7. The compound of claim 5 wherein R_f and R_{f'} contain, independently, at least 9 fluorine atoms.

8. The compound of claim 1 wherein R_f and R'_f are, independently, C_xF_{2x+1} , where x is about 2 to about 8.

9. The compound of claim 8 wherein x is 3 or 4.

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10. The compound of claim 1 wherein the compound has a viscosity is less than 100 centistokes ($100 \times 10^{-6} \text{ m}^2/\text{s}$) at -50°C .

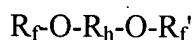
10 11. The compound of claim 10 wherein the compound has a viscosity of less than 50 centistokes ($50 \times 10^{-6} \text{ m}^2/\text{s}$) at -50°C .

12. An apparatus requiring heat transfer comprising:

(a) a device; and

(b) a mechanism for transferring heat to or from the device, comprising using a heat-transfer fluid,

15 wherein the heat transfer fluid is represented by the following structure:



wherein:

O is oxygen;

20 R_f and R'_f are, independently, a perfluoroaliphatic group; and

R_h is independently a linear, branched or cyclic alkylene group having from 2 to about 8 carbon atoms and at least 4 hydrogen atoms, and

wherein the hydrofluoroether compound is free of $-O-CH_2-O-$.

25 13. The apparatus according to claim 12, wherein the device is selected from the group consisting of microprocessors, wafers used to manufacture semiconductor devices, power control semiconductors, electrical distribution switch gear, power transformers, circuit boards, multi-chip modules, packaged and unpackaged semiconductor devices, chemical reactors, nuclear reactors, fuel cells, lasers, and missile components.

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14. The apparatus according to claim 12, wherein the device is heated.

15. The apparatus according to claim 12, wherein the device is cooled.

5 16. The apparatus according to claim 12, wherein the device is maintained at a selected
temperature.

10 17. The apparatus according to claim 12, wherein the mechanism for transferring heat is
selected from the group consisting of temperature controlled wafer chucks in PECVD
tools, temperature controlled test heads for die performance testing, temperature
controlled work zones within semiconductor process equipment, thermal shock test
bath liquid reservoirs, and constant temperature baths

15 18. A method for transferring heat comprising the steps of:
(a) providing a device; and
(b) using a heat-transfer fluid to transfer heat to or from the device,
wherein the heat-transfer fluid is represented by the following structure:



wherein:

20 O is oxygen;
 R_f and R_f' are, independently, a perfluoroaliphatic group; and
 R_h is independently a linear, branched or cyclic alkylene group having from 2 to about
8 carbon atoms and at least 4 hydrogen atoms, and
wherein the hydrofluoroether compound is free of $-O-CH_2-O-$.

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